### **BEST AVAILABLE COPY**

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

### (19) World Intellectual Property Organization

International Bureau



## 

(43) International Publication Date 19 May 2005 (19.05.2005)

PCT

(10) International Publication Number WO 2005/045730 A1

(51) International Patent Classification7: A61B 6/00

G06F 19/00,

(21) International Application Number:

PCT/GB2004/004603

(22) International Filing Date:

1 November 2004 (01.11.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 0325523.9

31 October 2003 (31.10.2003) GB

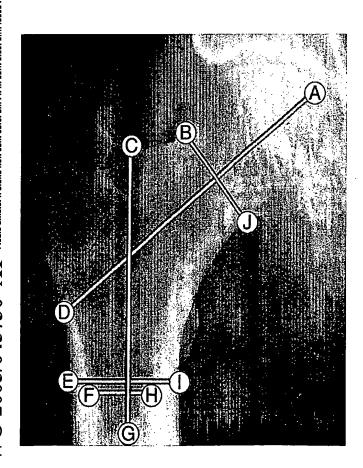
(71) Applicant (for all designated States except US): AB-ERDEEN UNIVERSITY [GB/GB]; Research and Innovation, University Office, Kings College, Aberdeen AB24 3FX (GB).

(72) Inventors; and

- (75) Inventors/Applicants (for US only): GREGORY, Jennifer, Susan [GB/GB]; 18 Watson Street, Aberdeen, AB25 2QJ (GB). ASPDEN, Richard, Malcolm [GB/GB]; Bonnyton Farm House, Pitmedden, Ellon, Aberdeenshire AB41 7QA (GB). REID, David, Macaulay [GB/GB]; Department of Medicine and Therapeutics, University of Aberdeen, Medical School, Foresterhill, Aberdeen AB25 2ZD (GB).
- (74) Agents: SUÈR, Steven, Johannes et al.; Ablett & Stebbing, Caparo House, 101-103 Baker Street, London W1U 6FQ (GB).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,

[Continued on next page]

(54) Title: APPARATUS FOR PREDICTING BONE FRACTURE RISK



(57) Abstract: An apparatus is disclosed for predicting bone fracture risk in an osteoporotic patient. The apparatus comprises a Dual X-ray Absorptiometry scanner for scanning a body area of the patient and producing a Dual X-ray Absorptiometry image of the body area, and image analysis means for analysing pre-determined aspects of the Dual X-ray Absorptiometry image. The apparatus further comprises data comparison means comprising a database of comparative data sets from Dual X-ray Absorptiometry images of control subjects to predict the risk of bone fracture in the patient. The image analysis means preferably analyses the shape of a body past using an Achive Shape Model or analyses the texture of a body past using Fourier Transforms and Principal Component Analysis.

# BEST AVAILABLE COPY

### WO 2005/045730 A1

MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,

FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### Published:

with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.